REMARKS

Claims 1-55 and 64-88 are pending in the present application. Claims 1, 29, 64, 68, 76, 79, 87 and 88 are amended above. No new matter is added by the amendments to the claims. Entry is respectfully requested.

Claims 1-55, 64-67, 76-78, 87 and 88 are rejected under 35 U.S.C. 112, first paragraph. Description in the specification and drawings as filed in support of the stated claim limitations can be found in the application as filed as follows:

Description in support of the claim limitation "when data stored in the data layer corresponding to the distorted region is read, a measurable change in system performance of the reading operation results" can be found at least at page 4, lines 12-19, page 13, lines 13-20, and page 17, lines 15-29 of the application as filed. For example, when the disc is read at location 1000 having a minor distortion region, the reading process is slowed down (see page 17, lines 23-25).

Description in support of the claim limitation "the ability to perform a reading operation in the distorted region is maintained" can be found at least at page 3, lines 2-12, page 4, line 28, through page 5, line 2, page 8, lines 11-15, page 14, lines 2-5, page 17, lines 15-29 and page 25, lines 7-11 of the application as filed. Data are read in the distorted region; however, the presence of the distorted region slows down the reading process but does not render the reading process impossible to complete. For example, when the disc is read at location 1000 having a minor amount of distortion, the reading process is slowed down.

The limitation of "the distorted region maintaining its optical characteristics following irradiation of the distorted region during the reading operation" is a natural result of the approach taken in the methods and media as claimed in the present application. Maintenance of optical characteristics in a result of the types

of distortions described in the specification and the characteristics of the medium on which they are formed. No physical modification occurs, or substantially limited modification of the disc occurs, as a result of the reading operation in the methods and media as claimed in the present application. This is in direct contrast with other approaches, such as the approach taken by Lawandy (U.S. Patent No. 6,338,933), discussed in Applicant's Amendment A dated August 13, 2004, in which the optical characteristics of the medium are permanently changed as a result of the irradiation from the reading operation.

Description in support of the claim limitation "detecting the measurable change in system performance", as claimed in claim 1, can be found at least at page 4, lines 12-19, page 9, lines 9-11, page 13, lines 13-28, and page 17, lines 15-29, page 21, lines 13-28, and page 25, lines 19-28 of the application as filed. In one example, at least at page 17, lines 15-29, the presence of a distortion at location 3000 "slows the reading process to a predetermined degree," and the "relationships of the degree of distortion..." relative to their locations, can be used to represent an encoding value that is unique to the medium and, therefore, can be used for authentication (see following paragraph regarding authentication). In another example, at least at page 25, lines 24-28, "performance metrics" is given as a physical property of a medium which can be used for identification of the medium (see following paragraph regarding authentication).

Description in support of the claim limitation "authenticating the optical medium based on the measurable change in the system performance", as claimed in claim 1 can be found at least at page 3, line 16 through page 4, line 2, page 4, lines 12-26, page 9, lines 9-11, page 13, lines 13-28, page 14, lines 16-18, page 21, lines 13-28 and page 26, lines 1-2 of the application as filed (see examples from previous paragraph).

Therefore, it is believed that the claims are supported by the specification in such a

manner as to reasonably convey possession of the claimed invention to one skilled in the art at the time of filing the application. Reconsideration and removal of the rejections of the claims is respectfully requested.

Claims 1, 29, 64, 76, 87 and 88 stand rejected under 35 U.S.C. 102(e) as being anticipated by Harras (DE 196 02 804 A1). Claims 2-28, 30-55, 65-75 and 79-86 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harras. Claims 64 and 68 are amended above to depend from claim 87, and claims 76 and 79 are amended to depend from claim 88. Reconsideration of the rejection and allowance of claims 1-55 and 64-88 are respectfully requested.

In the present invention as claimed in claims 1-28, 64-67, 68-75 and 87, a method for determining authenticity of an optical medium includes a distorted region modifying a reading operation of data stored in a data layer corresponding to the distorted region, such that when data stored in the data layer corresponding to the distorted region is read, a measurable change is system performance of the reading operation results and the reading operation is maintained with at least one of error-free status and degrees of error status that indicates an avoidance of complete data corruption while slowing down the reading operation process (see the specification at least at page 4, line 28 through page 5, line 2, page 17, lines 15-29 and page 21, lines 13-28). The method further includes detecting the measurable change in system performance that occurs during the reading operation that is maintained during reading of the distorted region. The measurable change in system performance is based on timing of the reading operation.

In the present invention as claimed in claims 29-55, 76-78, 79-86 and 88, an optical medium includes a distorted region formed such that a reading operation of data stored in the data layer corresponding to the distorted region is modified. A reading operation of data stored in the data layer corresponding to the distorted region is modified, such that when data stored in the data layer corresponding to the distorted region is read, a measurable change is system performance of the reading operation results and the reading operation is maintained with at least

one of error-free status and degrees of error status that indicates an avoidance of complete data corruption while slowing down the reading operation process (see the specification at least at page 4, line 28 through page 5, line 2, page 17, lines 15-29 and page 21, lines 13-28). The measurable change in system performance is based on timing of the reading operation.

Harras is directed to a system for copy prevention that relies on a physical defect that is applied to a disc or CD-ROM. The physical defect and the shape, size and locality thereof are defined randomly. The disc is intentionally damaged by laser, a hot, pointed object, paint, or simply by a scratch produced by a scalpel. When a scan program attempts to read the damaged areas of the disc, a read error that would ordinarily cause the system to abort the scan process occurs. However, the scan process suppresses aborting of the scan process. A duplicate of the data medium with the damaged locations can only be produced insofar as a "blank space" would exist on the copy in all the damaged locations. This, however, would not produce read errors during future scans, and therefore, in this manner, an original disc can be distinguished from a copy.

In addition, Harras teaches that reading of the destroyed regions of the <u>original</u> data medium is not possible, and that such reading produces a read error considered to be a system error. (see Harras translation, page 2, column 2, paragraph 6, and page 2, column 2, paragraph 5). A copy of the original data medium can only produce other types of error messages such as "File cannot be opened", "File not found" and "Data error." Apparently, by inquiring precisely about the types of error messages that are generated after the physically damaged regions are read, the test/scan program can discern an <u>original</u> media from a <u>copy</u>.

Therefore, the authentication process in Harras is <u>error-based</u>, in the sense that authentication of a medium in Harras is based on the type of error that is generated when reading the medium. An authentic disc under the Harras approach will generate a system error that under normal conditions would cause the scan program to <u>abort</u>. A non-authentic copy under the Harras approach will not generate such an extreme system error or read error, or will generate a

less severe read error, when scanned. Authentication decisions in Harras are, in this manner, based on the severity of the resulting <u>error</u>; therefore, the Harras authentication process is <u>error-based</u>.

In contrast, in the present invention as claimed, the authentication is <u>performance-based</u>. In particular, authentication is based on a "measurable change in system performance" that, in turn, is "based on timing of the reading operation." In view of this, the authentication of the present invention as claimed is also <u>timing-based</u>, rather than based on whether a specific type of <u>error</u> is present, as in Harras. For example, in the present invention as claimed, a severe error does not occur as a result of the reading of the distorted region, only a slowing of the reading process. This slowing of the reading operation, i.e., timing of the reading operation, is used as a performance-based parameter in authenticating the medium.

Therefore, Harras fails to teach or suggest that "when data stored in the data layer corresponding to the distorted region is read in a reading operation, a measurable change in system performance of the reading operation results and the ability to perform a reading operation in the distorted region is maintained with at least one of error-free status and degrees of error status <u>that indicates an avoidance of complete data corruption while slowing down the reading operation process</u>," as claimed in independent claims 1, 29, 87 and 88. Instead, the damage to the disc in Harras causes a system error, i.e., complete data corruption. The Harras approach produces such severe errors that a non-reproducible system error occurs, rather than causing a mere slowing down of the reading process.

In addition, Harras fails to teach or suggest that "the measurable change in system performance" is "based on timing of the reading operation," as claimed in independent claims 1, 29, 87 and 88. Instead, the damaged regions in Harras produce a read error considered to be a system error, which cannot be reproduced without software or a copy device. In Harras, a copied data medium can only produce error messages such as "File cannot be opened", "File not found" and "Data error." The test/scan program inquires precisely about the error messages occurring

after the physical damage.   Therefore, the measurable change in performance in Harras is <u>error based</u>, and not <u>timing based</u>.

It is therefore submitted that independent claims 1, 29, 87 and 88 are allowable over Harras. Reconsideration of the rejection of independent claims 1, 29, 87, and 88 under 35 U.S.C. 102(b) as being anticipated by Harras, and allowance of the claims, are respectfully requested. Further, reconsideration of the rejection of dependent claims 2-28, 30-55, 65-67, 69-75 and 80-86 under 35 U.S.C. 103(a) as being unpatentable over Harras, and allowance of the claims, and newly amended dependent claims 64, 68, 76, and 79 are respectfully requested, since the dependent claims should inherit the allowability of the independent claims from which they depend.
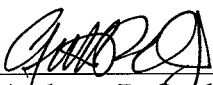
<u>Closing Remarks</u>

It is submitted that all claims are in condition for allowance, and such allowance is respectfully requested. If prosecution of the application can be expedited by a telephone conference, the Examiner is invited to call the undersigned at the number given below.

Authorization is hereby given to charge Deposit Account No. 501798 for any additional fees which may be due or to credit any overpayment.

Respectfully submitted,

Date: _Colobu 29, 2007_

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